UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,040	10/30/2003	David Hait	5013.005	1172

7590 08/01/2007

Law Office of Morris E. Cohen, Esq.
Suite 217
1122 Coney Island Avenue
Brooklyn, NY 11230-2345

EXAMINER	
SEE, CAROL A	
ART UNIT	PAPER NUMBER
3609	

MAIL DATE	DELIVERY MODE
08/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/698,040	HAIT, DAVID	
	Examiner	Art Unit	
	Carol See	3609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

KHOI H. TRAN
SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

REQUIREMENT FOR INFORMATION UNDER 37 CFR 1.105

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

2. The information is required to extend the domain of search for prior art. Limited amounts of art related to the claimed subject matter are available within the Office, and are generally found in class 705 and subclasses 35, 36R and 36T, which describe finance, portfolio selection, planning or analysis and tax strategies. A broader range of art to search is necessary to establish the level of knowledge of those of ordinary skill in the claimed subject matter art of calculating option price and vega simultaneously.

3. In response to this requirement, please provide copies of each publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of calculating vega, with simultaneous calculation of option price.

4. In response to this requirement, please provide the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing the claimed method of node vega calculation. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter.

5. In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met

by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

6. The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

7. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

8. This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

DETAILED ACTION

Priority

9. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/422,231 fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Accordingly, claims 5-8 are not entitled to the benefit of the prior application; therefore, claims 5-8 are only granted a priority date of October 30, 2003 (the filing date of Applicant's non-provisional application).

Drawings

10. Regarding Figure 1, applicant lists 2 equations. It is unclear to which equation applicant refers.

11. Further, in reference to Fig. 1, the word "can" renders the illustrated equation indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention.

12. Also, regarding Figure 1, applicant fails to define all terms in the listed equations. Appropriate correction is required.

Specification

13. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- Applicant fails to provide claimed equation in the specification.
- Applicant fails to define all terms in the claimed equation.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 5 – 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. As to claim 5, applicant recites "Equation 5" in the last line of the claim. All claimed inventions must be recited within the body of the claim. If Applicant wishes to claim Equation 5 in its entirety, Applicant must recite the equation within the body of the

claim since it is not clear how much of Figure 1 is to be read into the claims. Appropriate correction is required.

17. Because claims 5 – 8 are so indefinite, no art rejection is warranted as substantial guesswork would be involved in determining the scope and content of these claims. (See In re Steele, 305 F.2d 859, 134 USPQ 292 (CCPA 1962); ex parte Brummer, 12 USPQ 2d, 1653, 1655 (Bd. Pat. App. & Int., 1989); and also In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970)). Prior art pertinent to the disclosed invention is nevertheless cited and applicants are reminded they must consider all cited art under Rule 111(c) when amending the claims to conform with 35 U.S.C. 112.

Claim Rejections - 35 USC § 101

18. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

19. Claims 1 - 8 are rejected under 35 U.S.C. 101 because the claimed invention pre-empts a judicial exception.

20. Under the statutory requirement of 35 U.S.C. § 101, a claimed invention must produce a useful, concrete, and tangible result. For a claim to be useful, it must yield a result that is specific, substantial, and credible (MPEP § 2107). A concrete result is one that is substantially repeatable, i.e., it produces substantially the same result over and over again (*In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000)*). In order to be tangible, a claimed invention must set forth a practical application that generates a real-world result, i.e., the claim must be more than a mere abstraction

(*Benson, 409 U.S. at 71-72, 175 USPQ at 676-77*). Additionally, a claim may not preempt abstract ideas, laws of nature or natural phenomena nor may a claim preempt every "substantial practical application" of an abstract idea, law of nature or natural phenomena because it would in practical effect be a patent on the judicial exceptions themselves (*Gottschalk v. Benson, 409 U.S. 63, 71-72 (1972)*). (Please refer to the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" for further explanation of the statutory requirement of 35 U.S.C. § 101.)

21. In the instant case, Applicant's claims 1- 8 comprise a judicial exception - an abstract idea in the form of a mathematical algorithm (i.e., division and calculation as recited in claims 1-3 and 5-7). Applicant makes practical application of the mathematical algorithm in that a useful, concrete and tangible result is produced.

However, Applicant further recites calculation of a value and calculation of that value using a cited equation. The instant claims would impermissibly cover every substantial practical application of Applicant's claimed method, and thereby preempt all use of the equation. For example, non-option financial instruments can also have an implied volatility for which calculation of vega is required. The value over the long term of insurance contracts, asset portfolios, asset procurements, and a host of other business decisions can be covered by the broad scope of the claimed invention. Consequently, the claimed invention attempts to preempt all practical applications of the judicial exception which is improper under 35 U.S.C. § 101.

Claim Rejections - 35 USC § 102

22. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

23. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Makivic (U.S. 6,061,662).

As to claim 1, Makivic shows a method comprising:

a computer-implemented method for use in determination of implied volatility in options pricing (col. 3, lines 1-2), said method comprising the division of the period until option expiration into sub-periods ((see Table 2 and Table 3, wherein period to expiration is subdivided into a number of time periods until maturity), and calculation of a node vega, said node vega being the exact derivative of the option price with respect to the volatility in at least one of said subperiods (see Table 2 comments identifying derivative of option price with respect to volatility; see also col. 16, line 33 defining vega similarly to kappa).

As to claim 2, Makivic shows all elements of claim 1. Makivic further shows vega calculated at the end of a plurality of subperiods (see Table 2 and Table 3, wherein period to expiration is subdivided into a number of time periods until maturity; see also col. 16, line 33 defining vega similarly to kappa).

As to claim 3, Makivic shows all elements of claim 1. Makivic further shows calculation of implied volatility for American options (col. 3, lines 14-15).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makivic in view of applicant's admission of Cox- Ross-Rubinstein (CRR) binomial tree as well-known in the art.

Makivic shows all elements of claim 1.

Makivic does not show a method conducted using a Cox- Ross-Rubinstein (CRR) binomial tree.

Applicant acknowledges that CRR is an industry-wide standard for options pricing (first paragraph of applicant's detailed description of invention).

It would have been obvious to one of ordinary skill in the art to have modified the method disclosed by Makivic by employing calculation standards well known in the art because of its flexibility in handling different types of options.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol See whose telephone number is (571) 272-9742. The examiner can normally be reached on Monday - Thursday 7:45 am - 5:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran, can be reached on (571) 272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carol See
Patent Examiner
Art Unit 3609

KHOI H. TRAN
SUPERVISORY PATENT EXAMINER